REMARKS

Claims 1-13 are pending in this application. By the Office Action, claims 1-11 are rejected under 35 U.S.C. §102(b). By this Amendment, claims 1-3 and 6-11 are amended only to conform to U.S. practice without altering the scope of the claims, and new claims 12-13 are added. Support for new claims 12-13 can be found in the specification at, for example, page 6, lines 18-21. No new matter is added.

I. Rejections Under §102

Claims 1-11 are rejected under 35 U.S.C. §102(b) over JP 06-298556, JP 2002-167257, JP 04-175253, and JP 06-271347. Applicants respectfully traverse this rejection.

Independent claim 1 is directed to an additive for cement comprising the following component (A):

(A) a polycarboxylic acid series esterified copolymer obtained by esterifying a part or whole of carboxylic acid groups of a polycarboxylic acid series copolymer having a polyoxyalkylene chain with a derivative of an alcohol having a polyoxyalkylene chain and represented by the following formula (1)

$$R^1—(AO)_{n1}—H \qquad \ldots\ldots (1)$$

$$\begin{array}{l} R^2 \\ \quad \backslash \\ \quad\ N— \\ \quad / \\ R^3 \end{array} \qquad \ldots\ldots (2)$$

wherein R^1 represents a group of a heterocyclic ring having a nitrogen atom or a group represented by the above formula (2), R^2 and R^3 represent hydrocarbon groups having 1 to 6 carbon atom(s), respectively and independently, "AO" represents an oxyalkylene group having 2 to 4 carbon atoms, and "n1" represents an average mole number of addition of said oxyalkylene group and is 1 to 8. Such an additive for cement is nowhere disclosed in the cited references.

A. JP 2002-167257

JP 257 discloses a cement dispersant that prevents slump loss at high temperature while keeping high fluidity at filling. The dispersant is obtained by copolymerizing a specific polymer (A1) such as an ethylenic unsaturated carboxylic acid derivative having polyoxyalkylene groups and a specific polymer (A2) such as (meth)acrylic acid. Abstract. However, JP 257 does not disclose the claimed invention.

In the polymer (A1) of JP 257, R1 and R2 represent a hydrogen atom or a methyl group, respectively, and R3 represents a hydrogen atom or $-COO(AO)_nX_p$, where X represents hydrogen atom or an alkyl group having 1 to 18 carbon atoms. However, the polymer (A1) of JP 257 does not correspond to the claimed formula (1) in claim 1, which specifically requires that R^1 represents a heterocyclic ring having a nitrogen atom, or a group represented by formula (2), which is an amine group. JP 257 does not disclose a compound having a heterocyclic ring having a nitrogen atom, or an amine group.

Accordingly, JP 257 does not anticipate the claimed invention. Reconsideration and withdrawal of the rejection are respectfully requested.

B. JP 04-175253

JP 253 discloses an agent for preventing lowering of fluidity of a cement composition. The agent is obtained by copolymerizing maleic anhydride with a polyalkylene glycol allyl alkyl ether, and then esterifying the copolymer with an alkyl polyalkylene glycol. Abstract. However, JP 253 does not disclose the claimed invention.

In the polymer (1) of JP 253, R represents an alkyl group of 1 to 20 carbon atoms. In the polymer (2) of JP 253, R' represents an alkyl group of 1 to 4 carbon atoms. However, the polymers (1) and (2) of JP 253 do not correspond to the claimed formula (1) in claim 1, which specifically requires that R^1 represents a heterocyclic ring having a nitrogen atom, or a group

represented by formula (2), which is an amine group. JP 253 does not disclose a compound having a heterocyclic ring having a nitrogen atom, or an amine group.

Accordingly, JP 253 does not anticipate the claimed invention. Reconsideration and withdrawal of the rejection are respectfully requested.

C. JP 06-271347

JP 347 discloses a cement additive. The additive is an esterification reaction product of a copolymer of a polyoxyalkylene derivative of formula I and maleic anhydride, and a polyoxyalkylene derivative of formula II. Abstract. However, JP 347 does not disclose the claimed invention.

In the polymer I of JP 347, R1 represents an alkyl group of 1 to 4 carbon atoms. However, the polymer I of JP 347 does not correspond to the claimed formula (1) in claim 1, which specifically requires that R^1 represents a heterocyclic ring having a nitrogen atom, or a group represented by formula (2), which is an amine group. JP 347 does not disclose a compound having a heterocyclic ring having a nitrogen atom, or an amine group.

Accordingly, JP 347 does not anticipate the claimed invention. Reconsideration and withdrawal of the rejection are respectfully requested.

D. JP 06-298556

JP 556 discloses an esterified product to improve slump loss preventing properties, water reducing properties, and workability. Abstract; paragraphs [0003] and [0005]. The esterified product is a polyoxyalkylene derivative of formula I copolymerized with maleic anhydride, which is reacted with a polyoxyalkylene derivative of formula II. Abstract. However, JP 556 does not disclose the claimed invention.

It appears that the Office Action implies that formula II in JP 556 corresponds to the claimed polycarboxylic acid series esterified copolymer obtained by esterifying a part or whole of carboxylic acid groups of a polycarboxylic acid series copolymer having a

polyoxyalkylene chain with a derivative of an alcohol having a polyoxyalkylene chain and represented by the formula R^1—$(AO)_{n1}$—H, where R^1— can represent R^2R^3N—, R^2 and R^3 represent hydrocarbon groups having 1 to 6 carbon atom(s), AO represents an oxyalkylene group having 2 to 4 carbon atoms, and n1 represents an average mole number of addition of said oxyalkylene group and is 1 to 8.

Formula II in JP 556 is R^2—R^3—$N(A^2O)_m$—H, where R^2 and R^3 represent 1-4 carbon atom alkyl groups, A^2O represents an oxyalkylene group having 2 to 4 carbon atoms, and m is 1-300. As such, Formula II in JP 556 represents as many as 14,400 or more different compounds. Due to the broad range of compounds encompassed by the formula II in JP 556, that formula cannot anticipate each and every one of those compounds. It is well accepted that each element cannot merely be disclosed in the reference. Rather, the reference must disclose combining those separate components according to the claimed invention. For example, the Federal Circuit clearly held in *Ultradent Products, Inc. v. Life-Like Cosmetics, Inc.*, 127 F.3d 1065, 1071-72, 44 USPQ2d 1336, 1341-42 (Fed. Cir. 1997), that the disclosure of numerous possible combinations does not necessarily anticipate the claimed invention. The Court stated "the burden [of showing anticipation] was to show that the [reference] would describe to one of skill in the art . . . combinations meeting the limitations of the claims, from among the many possible candidates." See also *In re Petering*, 301 F.2d 676, 681, 133 USPQ 275, 279 (C.C.P.A. 1962), where the court held that "even though appellants' claimed compounds are encompassed by the broad generic disclosure, we do not think this disclosure by itself describes appellants' invention . . . within the meaning of 35 U.S.C. 102(b)."

In the present case, the mere disclosure of overlapping selections for R^2, R^3, A^2 and m in JP 556 does not anticipate the claimed invention. The disclosures are not co-extensive with the claimed compounds, and JP 556 fails to provide any specific teachings for selecting the different groups to provide the compounds of the claimed invention. That is, whereas the

claimed R^2 and R^3 groups represent 1-6 alkyl groups, JP 556 only discloses 1-4 alkyl groups. Instant claim 1 and JP 556 each disclose 2-4 carbon atom oxyalkylene groups as the A^2O (or AO) group. However, whereas instant claim 1 specifically recites a narrow range of 1-8 for the variable n1, JP 556's corresponding variable m is broadly recited to be 1-300 -- a range over 37 times bigger than that of instant claim 1.

Moreover, JP 556 does not provide any specific teaching for preferred values of its variable m. Instead, at Table 2, JP 556 discloses compounds where m is equal to 11, 30, 33, 35, 50, and 110. See Manufacturing Examples 1-11. Nowhere does JP 556 disclose that the variable m should be lower than the value of 11 in the Examples.

Because JP 556 fails to specifically disclose the claimed compounds, JP 556 cannot anticipate the claimed invention. Reconsideration and withdrawal of the rejection are respectfully requested.

Although not specifically rejected under §103, Applicants also provide the following comments directed to JP 556.

Not only does JP 556 not specifically disclose the claimed compounds, but JP 556 also fails to teach or suggest the claimed compounds, or the unexpected results provided thereby.

As described above, with respect to the variable m, JP 556 discloses a broad range of 1-300, and discloses specific values of 11, 30, 33, 35, 50, and 110 in Table 2. At page 7 (Table 4) of the reference, it is disclosed that cement compositions including the compounds exhibit slump values that are maintained even after 90 minutes after the mixing. These results in JP 556 appear to be independent of the value m.

However, the present inventors have discovered that slump loss at high temperature (30°C) can be considerably reduced by lowering the average mole number of addition (n1 in claim 1). Specifically, slump loss at high temperature (30°C) can be considerably reduced by

lowering the average mole number of addition (n1) to be limited to 1 to 8. Furthermore, such slump loss at high temperature (30°C) is difficult to predict based only on experimental results of slump loss at ambient temperature (20°C). These results are not taught or suggested by JP 556.

These unexpected results are shown in Tables 2 to 7 of the application. For example, in Table 5, n1 is selected to be 1, 2, and 3 in Examples 1, 2, and 3, and is selected to be 33 in Comparative Example 1. For these experiments, the slumps 90 minutes after mixing (at 20°C) are 20.0, 20.0, 20.5, and 19.0, respectively in Examples 1, 2, and 3 and Comparative Example 1. These results indicate comparable slump results for n1 values ranging from 1 to 33. However, the slumps 90 minutes after mixing (at 30°C) are 19.0, 19.0, 19.6, and 15.4, respectively in Examples 1, 2, and 3 and Comparative Example 1. These results indicate that despite the comparable results at 20°C, results at 30°C are advantageous where the n1 value is 1 to 8, and poor where the n1 value is 33. Similar results are shown in Tables 6 and 7 of the specification. Such results are not predictable from the results at 20°C alone, and are nowhere taught or suggested in JP 556.

While JP 556 provides slump values for its compositions, those values are reported only at 20°C. In the Examples of JP 556, the slump values at 20°C are all disclosed to be generally comparable, regardless of the selection of the variable m to be between 11 and 110. However, JP 556 does not provide any slump results at 30°C, and does not teach or suggest the unexpected results that slump values significantly change at values outside the range of 1 to 8. JP 556 neither teaches this problem, nor its solution.

Accordingly, for this additional reason, the claimed invention also would not have been obvious over JP 556. The claims are thus patentable over JP 556.

II. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of the application are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

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